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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of : Jim Hranica et al.)

Serial No.: 10/612,755)

Filed: July 3, 2003)

Title: A METHOD OF SUPPLYING
WORKPIECES TO AN AUTOLOADER)

Atty. Dkt.: HON-14852)

Group Art Unit: 3651

Examiner: Joseph E.
Valenza

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS' BRIEF (37 CFR § 43.37)

This brief is submitted in triplicate. A check in the amount of \$500.00 is enclosed to cover the fee referenced in 37 CFR § 41.20(b)(2). If any additional fees are due for this filing, please charge such additional required fees to our Deposit Account No. 18-0160, our order No. HON-14852.

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This brief contains the items under the following headings in the order set forth below:

- I. REAL PARTY IN INTEREST
- II. RELATED APPEALS AND INTERFERENCES
- III. STATUS OF CLAIMS
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- IX. EVIDENCE APPENDIX (none)
- X. RELATED PROCEEDINGS APPENDIX (none)

I. REAL PARTY IN INTEREST

Honda Giken Kogyo Kabushiki Kaisha, having a place of business at 1-1 Minamiaoyama 2-chome, Minato-ku, Tokyo, Japan is the real party in interest and the assignee of all right, title, and interest to the invention throughout the world. An assignment from inventors Jim Hranica, Yasunori Yamazaki and Scott Costello has been recorded with the United States Patent and Trademark Office and can be found at Reel 014540 and Frame 0871.

II. RELATED APPEALS AND INTERFERENCES

Applicant does not know of any related appeals and/or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

- A. Total Number of Claims in Application

Twenty six claims are currently pending in this application.

B. Status of the Claims

1. Claims previously canceled: None.
2. Claims withdrawn from consideration but not cancelled: None.
3. Claims pending: 1-26.
4. Claims allowed: None.
5. Claims rejected: Claims 1-26.
6. Claims objected to: None.
7. Claims indicated as allowable if the § 112 rejections are overcome: None.

C. Claims on Appeal

The claims on appeal are: Claims 1-26.

IV. STATUS OF AMENDMENTS

A Response to the Final Office Action of November 3, 2004 was filed on December 29, 2004. The Examiner has indicated in an Advisory Action dated January 19, 2005 that the Response did not place the application in condition for allowance because, in the Examiners opinion, the proposed amendments raise new issues that would require further consideration and/or search. The Response to the Final Office Action of November 3, 2004 proposed changes to the pending claims.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The presently claimed invention relates to a method of supplying workpieces to a plurality of workstations MC1-MC13, each of the workstations

being operable to generate and transmit a call signal, a ready signal, and an error signal. *(Specification page 6 lines 4-14)* The method includes receiving all call, ready and error signals transmitted from the workstations and for all received call signals, determining a selected one of the call signals, which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal.

(Specification page 15 line 12 – page 16, line 8)

The method also includes responding to the selected one of the call signals by moving a selected one of the workpieces from an input area to a selected one of the workstations, which is the workstation that transmitted the selected one of the call signals, and determining if a ready signal or an error signal has been received from the selected one of the workstations.

(Specification page 16 lines 9-19)

If an error signal has been received from the selected one of the workstations, then the next oldest one of the call signals that has not been responded to is determined. *(Specification page 20 line 26 - page 21, line 2)*

If neither a ready signal nor an error signal has been received from the selected one of the workstations, then such a signal is repeatedly looked for.

(Specification page 16 lines 17-19)

If a ready signal is received from the selected one of the workstations, the selected one of the workpieces is loaded into the selected one of the workstations and the next oldest call signal is addressed. *(Specification page 16 lines 13-29)*

The presently claimed invention also includes a method of controlling an autoloader 10 that supplies the previously mentioned workpieces to the

workstations MC1-MC4. The autoloader 10 includes a carriage 50 mounted to a guidance structure and is movable along the length of the guidance structure. The carriage 50 includes at least one gripper 58, 60 that picks up and holds a selected one of the workpieces in an input area. (*Specification page 6 line 22 – page 7 line 2*) In response to one of the call signals the carriage 50 is moved with the workpiece to the selected workstation MC1-MC4. If a ready signal has been received from the selected workstation MC1-MC4, the selected workpiece is loaded into the selected workstation MC1-MC4 using the gripper 58, 60.

The presently claimed invention also includes a method of moving a workpiece through a work line having a plurality of zones 20, 24, 26, each zone including a plurality of workstations MC1-MC4 that perform the same type of operation. The workpiece starts in a first input area and then is moved to a selected workstation MC1-MC4 in the first zone 20, that workstation having sent the oldest call signal without also sending an error signal. After the workpiece is worked on in the first zone 20, the workpiece is moved to an input area of a second zone 26 and the process repeated. (*Specification page 4, line 16 to page 5, line 2*)

VI. GROUND OF REJECTION

1. Claims 1-6 and 18-23 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,467,605 to Head, III.
2. Claims 7-17 and 24-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,467,605 to Head, III.

VII. Arguments

A. The Rejection of Claims 1-6 and 18-23 under 35 U.S.C. §102(b) as being anticipated by Head III.

Group I: Claims 1, 2, and 4-6

"A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference." *In re Paulsen*, 30 F.3d 1475, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994). The rejection of independent claim 1 and dependent claims 2, and 4-6 is in error and should be reversed, because each and every limitation of the claimed invention is not disclosed by Head III.

The Head III reference fails to disclose within its methods a step whereby "for all received call signals, determining a selected one of the call signals, which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal" and further "responding to the selected one of the call signals by moving a selected one of the workpieces from an input area to a selected one of the workstations, which is the workstation that transmitted the selected one of the call signals" as required. Head III does not disclose a configuration where numerous call signals are received from various work stations, but rather describes more of a patterned system where the progression of work from a first station or stations to a next station is predetermined and known.

Additionally, Head III does not disclose moving a workpiece to a work station calling for the workpiece, but not immediately loading the workpiece into the workstation. As a result, Head III does not then disclose "if a ready signal has been received from the selected one of the workstations, loading

the selected one of the workpieces into the selected one of the workstations" as required by claim 1 and the claims depending therefrom. Instead, Head III discloses maintaining a workpiece at an upstream workstation until the upstream workstation has completed its operation and then, when both the upstream and downstream workstations are prepared to commence a transfer, the workpiece is directly loaded into the downstream work station.

Accordingly, with reference to *Group I* Head III does not teach or suggest all steps of the claimed method.

Group II: Claim 3

The rejection of dependent claim 3 is in error and should be reversed, because each and every limitation of the claimed invention is not disclosed by Head III. Claim 3 depends directly from claim 1, thus, Applicant incorporates the arguments made under the subheading *Group I* herein. Additionally, Head III does not teach or suggest "moving the carriage with the worked-upon one of the workpieces to a drop-off station; and depositing the worked-upon one of the workpieces in the drop-off station" as required. Head III simply teaches moving the workpieces from one station to another without any sort of dedicated drop off position. Accordingly, the method defined in *Group II* is not anticipated by Head III.

Group III: Claims 18-19

The rejection of independent claim 18 and dependent claim 19 is in error and should be reversed, because each and every limitation of the claimed invention is not disclosed by Head III. Head III does not disclose supplying workpieces to "workstations based on the chronological order of the receipt of the call signals from the workstations, such that the workstation that

transmits a first received one of the call signals is supplied with one of the workpieces first" as required. Rather, Head III discloses a patterned processing sequence, not a situation where multiple calls requiring prioritization are received.

Further, specifically with regard to claim 19, Head III does not disclose moving a workpiece to a work station and waiting at that workstation until the absence of an error signal is confirmed before loading the workpiece into the workstation. Further Head III does not disclose, "moving said one of the workpieces to a next one of the workstations that transmitted a call signal that was received subsequent to the call signal from said one of the workstations" if "said one of the workstations has transmitted an error signal."

Accordingly, the method defined in *Group III* is not anticipated by Head III.

Group IV: Claims 21-23

The rejection of independent claim 21 and dependent claims 22, 23 is in error and should be reversed, because each and every limitation of the claimed invention is not disclosed by Head III. For either the first or second zone a step wherein for all received call signals from the workstations, "determining a selected one of the call signals which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal" is a step not disclosed by Head III. Further, specifically with regard to claim 22, Head III does not disclose moving a workpiece to a work station and waiting at that workstation until the absence of an error signal is confirmed before loading the workpiece into the workstation.

Accordingly, the method defined in *Group IV* is not anticipated by Head III.

B. The Rejection of Claims 7-17 and 24-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,467,605 to Head, III

In order to establish a prima facie case of obviousness under 35 U.S.C. §103, the cited references must teach each and every claim limitation or elements of the rejected claims. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The rejection of independent claim 9 and dependent claims 7-8, 10-17 and 24-26 is in error and should be reversed, because each and every limitation of the claimed invention is not taught or suggested by Head III.

Group I: Claims 7-8

Claims 7, 8 depend directly from claim 1. As previously stated regarding claim 1, the Head III reference fails to teach or suggest within its methods a step whereby "for all received call signals, determining a selected one of the call signals, which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal" and further "responding to the selected one of the call signals by moving a selected one of the workpieces from an input area to a selected one of the workstations, which is the workstation that transmitted the selected one of the call signals." Rather, as noted previously, Head III teaches a computer system controller that will simply process a request from a downstream work station requesting a workpiece from an upstream work station. The teachings of Head III also do not suggest these steps in the

claimed method of operation. Rather, Head III would have to be modified to arrive at the method defined in claim 1, from which claims 7, 8 depend. Insofar as the Examiner has not indicated any suggestion or motivation to support modification of the Head III teachings, it is considered apparent that a prima facie case of obviousness has not been established for *Group I*.

Group II: Claims 9-17

The rejection of independent claim 9 and dependent claims 10-17 is in error and should be reversed, because each and every limitation of the claimed invention is not taught or suggested by Head III. Head III does not teach or suggest moving a workpiece to a work station and waiting at that workstation until the absence of an error signal is confirmed before loading the workpiece into the workstation. Rather, Head III teaches not moving the workpiece at all from an upstream location until the downstream workstation is prepared for receipt.

With specific regard to claim 11, Head '605 does not teach or suggest "moving the carriage with the worked-upon one of the workpieces to a drop-off station; and depositing the worked-upon one of the workpieces in the drop-off station" as required. Head '605 simply teaches moving the workpieces from one station to another without any sort of dedicated drop off position. Thus, it is considered apparent that a prima facie case of obviousness has not been established for *Group II*.

Group III: Claims 24-26

Claims 24-26 depend directly from claim 21, thus, Applicant incorporates the arguments made under the subheading *Group IV* of Section A., herein. The rejection of dependent claims 24-26 is in error and should be

reversed, because each and every limitation of the claimed invention is not taught or suggested by Head III. For either the first or second zone a step wherein for all received call signals from the workstations, "determining a selected one of the call signals which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal." The teachings of Head III also do not suggest this step in the claimed method of operation. Rather, Head III teaches a computer system controller that will simply process a request from a downstream work station requesting a workpiece from an upstream work station. Thus, it is considered apparent that a prima facie case of obviousness has not been established for *Group III*.

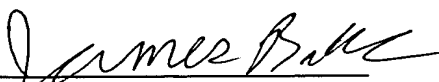
Conclusion

The prior art rejections of the cited claims should be reversed because the cited reference does not disclose or suggest the invention recited in the claims. Specifically, the rejection of claims 1-6 and 18-23 under 35 U.S.C. §102(b) as being anticipated by Head III. is in error. Also, the rejection of claims 7-17 and 24-26 under 35 U.S.C. §103(a) as being obvious in view of Head III is in error.

For the reasons set for the herein, the rejections of the claims 1-26 of the present application are in error and must be reversed.

Respectfully submitted,
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Date: 4/25/05


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APPENDIX A

Claim 1 (Original): A method of supplying workpieces to a plurality of workstations, each of said workstations being operable to generate and transmit a call signal, a ready signal, and an error signal, said method comprising the steps of:

(a.) receiving all call, ready and error signals transmitted from the workstations;

(b.) for all received call signals, determining a selected one of the call signals, which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal;

(c.) responding to the selected one of the call signals by moving a selected one of the workpieces from an input area to a selected one of the workstations, which is the workstation that transmitted the selected one of the call signals;

(d.) determining if a ready signal or an error signal has been received from the selected one of the workstations;

(e.) if an error signal has been received from the selected one of the workstations, returning directly to step (b.);

(f.) if neither a ready signal, nor an error signal has been received from the selected one of the workstations, returning to step (d.); and

(g.) if a ready signal has been received from the selected one of the workstations, loading the selected one of the workpieces into the selected one of the workstations; and

(h.) returning to step (b.).

Claim 2 (Original): The method of claim 1, wherein step (g.) further comprises the substep of unloading a worked-upon one of the workpieces from the selected one of the workstations before the selected one of the workpieces is loaded into the selected one of the workstations.

Claim 3 (Original): The method of claim 2, further comprising:

step (i.) moving the worked-upon one of the workpieces to a drop-off station; and

wherein step (i.) is performed between steps (g.) and (h.).

Claim 4 (Original): The method of claim 1, wherein step (a.) comprises the non-sequential sub-steps of (a1.) receiving a call signal, (a2.) receiving an error signal, and (a3.) receiving a ready signal, and wherein

sub-step (a1) is performed any time during the performance of the method when one of the workstations transmits a call signal;

sub-step (a2) is performed any time during the performance of the method when one of the workstations transmits an error signal; and

sub-step (a3) is performed any time during the performance of the method when one of the workstations transmits a ready signal.

Claim 5 (Original): The method of claim 1, wherein the oldest one of the call signals is determined based upon the time of receipt of the call signals.

Claim 6 (Original): The method of claim 1, wherein steps (c.) and (g.) are performed by an autoloader.

Claim 7 (Original): The method of claim 1, wherein the workstations all perform the same type of operation on the workpieces.

Claim 8 (Original): The method of claim 1, wherein the workpieces are unfinished crankshafts.

Claim 9 (Original): A method of controlling an autoloader that supplies workpieces to a plurality of workstations, wherein the autoloader comprises a carriage mounted to a guidance structure and moveable along the length of the guidance structure, said carriage including at least one gripper, and wherein each of said workstations is operable to generate and transmit a call signal, a ready signal, and an error signal, and wherein said method comprises the steps of:

- (a.) receiving all call, ready and error signals transmitted from the workstations;

- (b.) for all received call signals, determining a selected one of the call signals, which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal;

- (c.) moving the carriage to the input area;

- (d.) using the at least one gripper, picking up and holding a selected one of the workpieces in the input area;

(e.) responding to the selected one of the call signals by moving the carriage with the selected one of the workpieces to a selected one of the workstations, which is the workstation that transmitted the selected one of the call signals;

(f.) determining if a ready signal or an error signal has been received from the selected one of the workstations;

(g.) if an error signal has been received from the selected one of the workstations, returning to step (b.); and

(h.) if neither a ready signal, nor an error signal has been received from the selected one of the workstations, returning to step (f.);

(i.) if a ready signal has been received from the selected one of the workstations, loading the selected one of the workpieces into the selected one of the workstations, using the at least one gripper; and

(j.) returning to step (b.).

Claim 10 (Original): The method of claim 9, wherein step (i.) further comprises the substep of using the at least one gripper to unload a worked-upon one of the workpieces from the selected one of the workstations before the selected one of the workpieces is loaded into the selected one of the workstations.

Claim 11 (Original): The method of claim 10, further comprising the steps of

(k.) moving the carriage with the worked-upon one of the workpieces to a drop-off station; and

(l.) depositing the worked-upon one of the workpieces in the drop-off station, using the at least one gripper; and
wherein steps (k.) and (l.) are performed between step (i.) and step (j.).

Claim 12 (Original): The method of claim 11, wherein in an initial cycle of the method, steps (c.) and (d.) are performed before step (b.) and in subsequent cycles of the method, steps (c.) and (d.) are performed after steps (k.) and (l.) and before step (j.).

Claim 13 (Original): The method of claim 12, wherein the at least one gripper comprises a pair of grippers for holding the selected one of the workpieces and the worked-upon one of the workpieces, respectively.

Claim 14 (Original): The method of claim 9, wherein step (a.) comprises the non-sequential sub-steps of (a1.) receiving a call signal, (a2.) receiving an error signal, and (a3.) receiving a ready signal, and wherein

sub-step (a1) is performed any time during the performance of the method when one of the workstations transmits a call signal;

sub-step (a2) is performed any time during the performance of the method when one of the workstations transmits an error signal; and

sub-step (a3) is performed any time during the performance of the method when one of the workstations transmits a ready signal.

Claim 15 (Original): The method of claim 9, wherein the oldest one of the call signals is determined based upon the time of receipt of the call signals.

Claim 16 (Original): The method of claim 9, wherein the workstations all perform the same type of operation on the workpieces.

Claim 17 (Original): The method of claim 9, wherein the workpieces are automotive crankshafts.

Claim 18 (Original): A method of supplying workpieces to a plurality of workstations, each of said workstations being operable to generate and transmit a call signal and an error signal, said method comprising the steps of:

(a.) receiving all call and error signals transmitted from the workstations; and

(b.) supplying each of the workstations that transmits a call signal and not an error signal with one of the workpieces; and

wherein step (b.) is performed such that the workpieces are supplied to the workstations based on the chronological order of the receipt of the call signals from the workstations, such that the workstation that transmits a first received one of the call signals is supplied with one of the workpieces first.

Claim 19 (Original): The method of claim 18, wherein step (b.) comprises the sub-steps of:

(b1.) moving one of the workpieces from an input area to one of the workstations that transmitted a call signal;

(b2.) determining whether said one of the workstations has transmitted an error signal; and

(b3.) if said one of the workstations has transmitted an error signal, moving said one of the workpieces to a next one of the workstations that transmitted a call signal that was received subsequent to the call signal from said one of the workstations.

Claim 20 (Original): The method of claim 19, wherein the workpieces are automotive crankshafts.

Claim 21 (Original): A method of moving a workpiece through a work line comprising a plurality of zones, wherein each zone comprises a plurality of workstations that perform the same type of operation, and wherein each workstation is operable to generate and transmit a call signal and an error signal, said method comprising the steps of:

(a.) receiving all call and error signals transmitted from the workstations in a first one of the zones;

(b.) for all received call signals from the workstations in the first one of the zones, determining a selected one of the call signals, which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal;

(c.) responding to the selected one of the call signals by moving the workpiece from a first input area to a selected one of the workstations in the first one of the zones, which is the workstation that transmitted the selected one of the call signals;

(d.) working on the workpiece in the selected one of the workstations;

(e.) after step (d.), moving the workpiece to a second input area;

(f.) receiving all call and error signals transmitted from the workstations in a second one of the zones; and

(g.) for all received call signals from the workstations in the second one of the zones, determining a second selected one of the call signals, which is the oldest one of the call signals that has not been responded to and has not come from a workstation that has also transmitted an error signal;

(h.) responding to the second selected one of the call signals by moving the workpiece from the second input area to a second selected one of the workstations in the second one of the zones, which is the workstation that transmitted the second selected one of the call signals;

(i.) working on the workpiece in the second selected one of the workstations; and

(j.) after step (i.), moving the workpiece to a third input area.

Claim 22 (Original): The method of claim 21, wherein each workstation is further operable to generate and transmit a ready signal, and wherein the method further comprises the steps of:

(k.) determining if a ready signal or an error signal has been received from the selected one of the workstations;

(l.) if an error signal has been received from the selected one of the workstations, returning directly to step (b.);

(m.) if neither a ready signal, nor an error signal has been received from the selected one of the workstations, returning to step (k.); and

(n.) if a ready signal has been received from the selected one of the workstations, loading the workpiece into the selected one of the workstations;

(o.) determining if a ready signal or an error signal has been received from the second selected one of the workstations;

(p.) if an error signal has been received from the second selected one of the workstations, returning directly to step (g.);

(q.) if neither a ready signal, nor an error signal has been received from the second selected one of the workstations, returning to step (o.); and

(r.) if a ready signal has been received from the second selected one of the workstations, loading the workpiece into the second selected one of the workstations; and

wherein steps (k.), (l.), (m) and (n) are performed between steps (c.) and (d.), and wherein steps (o.), (p.), (q.) and (r.) are performed between steps (h.) and (i.).

Claim 23 (Original): The method of claim 22, wherein step (a.) comprises the non-sequential sub-steps of (a1.) receiving a call signal, (a2.) receiving an error signal, and (a3.) receiving a ready signal, wherein:

sub-step (a1) is performed any time during the performance of the method when one of the workstations in the first one of the zones transmits a call signal;

sub-step (a2) is performed any time during the performance of the method when one of the workstations in the first one of the zones transmits an error signal; and

sub-step (a3) is performed any time during the performance of the method when one of the workstations in the first one of the zones transmits a ready signal; and

wherein step (f.) comprises the non-sequential sub-steps of (f1.) receiving a call signal, (f2.) receiving an error signal, and (f3.) receiving a ready signal, and wherein:

sub-step (f1) is performed any time during the performance of the method when one of the workstations in the second one of the zones transmits a call signal;

sub-step (f2) is performed any time during the performance of the method when one of the workstations in the second one of the zones transmits an error signal; and

sub-step (f3) is performed any time during the performance of the method when one of the workstations in the second one of the zones transmits a ready signal.

Claim 24 (Original): The method of claim 21, wherein step (c.) is performed by a first autoloader and step (h.) is performed by a second autoloader.

Claim 25 (Original): The method of claim 24, wherein the workstations in the first one of the zones performs a different operation than the workstations in the second one of the zones.

Claim 26 (Original): The method of claim 21, wherein the workpiece is an unfinished crankshaft.